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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,138	09/30/2003	Risto Olavi Harjula	7212.3001.002	5711
7590 02/27/2004			EXAMINER	
William J. Schramm Reising Ethington, Barnes, Kisselle, P.C. P.O. Box 4390 Troy, MI 48099			CINTINS, IVARS C	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/675,138

Applicant(s)

HARJULA ET AL.

Examiner

Ivars C. Cintins

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/30/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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The disclosure is objected to because of the following informalities: (1) the title does not accurately describe the invention being claimed, since only method claims are present in this application; (2) this application fails to contain a brief description of the drawings, as required by 37 CFR § 1.74; and (3) figures 10a and 10b do not appear to be described in the specification, as further required by 37 CFR § 1.74. Also, although Figs. 6-9 have been mentioned in the specification (i.e. paragraphs 0020, 0025, 0055, 0056, 0058 and 0059), Figs. 6a, 6b, 7a, 7b, 8a, 8b, 9a and 9b have not been individually mentioned. Appropriate correction is required.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11 and 16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the removal of Sr, Cs, Co, Pu or Am radioactive metal ions, does not reasonably provide enablement for the removal of Zn, Fe or Mn radioactive metal ions. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. It is noted that Table 1 (paragraph 0080) discloses Zn-65, Fe-59 and Mn-54, but it appears that the material used to generate the data in this table is ordinary (i.e. not doped) antimony silicate (see paragraph 0019, and the heading for Table 1). There is no suggestion in the disclosure that the claimed material (i.e. antimony silicate doped with tungsten, niobium and/or tantalum) is capable of removing such nuclides from an aqueous solution.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 5, 12 and 13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The recitation that "the material has a crystalline structure as shown by an X-ray diffraction analysis of the material" (claim 5) is vague and indefinite as to the limitation intended, since it is not clear whether Applicant is attempting to recite any "analysis" steps. Also, the term "such as" (claims 12 and 13, line 2) is vague, and indefinite as to the background ion content of the aqueous solution undergoing treatment.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bedard (U.S. Patent No. 5,858,243). The reference discloses removing contaminant metal ions of the type recited (see col. 5, lines 29-32) from an aqueous stream (see col. 1, lines 14-15) with a crystalline silicate material (see col. 2, lines 49 and 53) containing niobium, tantalum, antimony or mixtures thereof (see col. 2, lines 59-61). This reference further suggests the ratio recited in claim 2, as well as the concentration recited in claims 3 and 4 (see col. 2, lines 61-63). Accordingly, this reference discloses the claimed invention with the exception of the use of a silicate containing a combination of antimony with tungsten, niobium and/or tantalum. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a combination of antimony with niobium or tantalum as constituent "M" in the reference material, since this reference clearly suggests such a mixture of elements (col. 2, lines 59-61).

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Claims 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bedard as applied above, and further in view of Dietz et al. (U.S. Patent No. 5,888,398). Bedard discloses the claimed invention with the exception of the recited pH for the aqueous stream. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to treat a nuclear waste stream having a pH of less than 7 by the process of Bedard (see col. 1, lines 14-15), since Dietz et al. teaches (see col. 1, lines 22-27) that such nuclear waste streams are typically acidic.

Applicant is advised that should claim 7 be found allowable, then claim 8 will be objected to under 37 CFR § 1.75 as being a substantial duplicate thereof. See M.P.E.P. § 706.03(k).

Anthony et al. (U.S. Patent No. 6,110,378) discloses a similar method for removing contaminant metal ions from an aqueous stream.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I. Cintins whose telephone number is (571) 272-1155. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Blaine Copenheaver, can be reached at (571) 272-1156.

The centralized facsimile number for the USPTO is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ivars C. Cintins**  
**Primary Examiner**  
**Art Unit 1724**

I. Cintins  
February 22, 2004